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TECHNICAL TRANSLATIONS

by

DR. ANDRE L. BRICHANT

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SECOND QUARTER - 1967

ST - AA - AI - 10585
9 pages

RECOMBINATION PROCESSES IN THE LOWER
IONOSPHERE [Pudovkin, Geomagnetizm
i aeronomiya, 1966]

The peculiarities of recombination of auroral ionization are considered. The rate of ions NO^+ recombination is evaluated. It is shown that when taking into account the reaction $\text{N}_2^+ + \text{O}_2 \rightarrow \text{NO}^+ + \text{NO}$ ($\gamma = 10^{-13} - 10^{-12}$ cm³/sec), we are in a position to explain the rate of recombination not only in polar aurorae, but also in a quiet diurnal ionosphere.

ST - MSF - 10586
5 pages

FROM OUTER SPACE BY PARACHUTE! [Tereshkova, Aviatsiya i kosmonavtika, 1967]

Highlights are presented of an article by astronaut Valentina Nikolayeva-Tereshkova in response to readers of the above mentioned periodical.

ST - SP - PF - 10587
6 pages

ON THE POSSIBLE POLARIZATION OF SOLAR
FLARES' X-RAY BREMMSTRAHLUNG [Korchak,
Doklady, Astronomiya, 1967]

The polarization of X-ray bremsstrahlung of solar flares is assumed on the basis of this possibility for cosmic X-ray

radiation and also because in the course of solar flares the emergence of sharply anisotropic beams of accelerated electrons can be expected. The conclusion is also derived that when it is attempted to determine the emission mechanisms in the course of polarization observations, these should be conducted in at least two energy regions of photons sufficiently apart from one another.

ST - PP - NP - 10588
7 pages

PLASMA INSTABILITY AND NUCLEAR FUSION
[Kadomtsev, Vestnik A.N. SSSR, 1967]

This paper discusses the various forms of plasma instabilities, whose, if only partial, stabilization is necessary to control thermonuclear reactions. A preliminary conclusion is derived that plasma instability can be substantially decreased by increasing the magnetic field, by increasing the criss-cross of the lines of force and also the dimensions of the system. Tentative values are given for the dimensions of a thermonuclear reactor and the intensity of its magnetic field.

ST - PF - 10589
4 pages

VARIATION OF THE ANGULAR AND ENERGY DISTRIBUTION IN A CHARGED PARTICLE FLOW ACROSS A MAGNETIC FIELD [Gernet, Doklady, Fizika, 1967]

The influence is determined of the radiation retardation on the distribution by angles and energies in a flux of charged particles across a magnetic field layer of finite thickness. The results obtained may have significance in astrophysics when considering the motion of fast electron fluxes through regions of stellar atmospheres and nebulae with intense magnetic fields.

ST - GM - PF - 10590
10 pages

INFLUENCE OF THE OUTER MAGNETIC FIELD UPON THE SHAPE OF THE INTERFACE BETWEEN PLASMA FLUX AND THE PLANE DIPOLE CAVITY
[Samokhin, Geomagnetizm i aeronomiya, 1967]

The shape of the interface is determined between plasma flux with frozen-in magnetic field and the cavity filled by the magnetic field of a plane dipole. The cavity is found to be closed, and suggests a crescent with a hemispherical protuberance on the convex side, turned toward the flow of plasma.

If the external field is parallel to the velocity vector of the flow, the interface curves or bends inside in polar regions and in the posterior part near the equatorial plane. When the

outer field is directed perpendicularly to the velocity, the hollows are absent at poles and in the posterior part, and the boundary of the tail is constituted by a circle.

ST - PR - 10591
1 page

ROUTE TO THE COSMODROME [Golovanov,
Komsomol'skaya pravda, 12 April 1967]

The column was published on the occasion of "Cosmonaut's Day." It contains only a historical review of rocketry, repeating again that Tsiolkovskiy is the "father of rocketry," and that he was twenty years in advance of Goddard. In addition, a photograph is printed immediately after the column, beside another depicting a group of eleven Soviet astronauts, showing a spacecraft.

ST - RWP - AI - 10592
6 pages

INFLUENCE OF IONS ON THE PASSAGE OF
LOW FREQUENCY ELECTROMAGNETIC WAVES
THROUGH THE IONOSPHERE [Aksenov,
et al., Radiotekhnika i elektronika,
April, 1967]

This paper is the generalization of the rigorous solution obtained in the reference [1] by the present author, on the passage of VLF electromagnetic waves through a planostratified magnetoactive ionospheric plasma in the case of longitudinal propagation. Here the influence of ions is taken into account and the results are applicable in frequencies < 1.5 kc/sec.

ST - PF - GM - 10593
11 pages

COULOMB RELAXATION OF ELECTRONS OF
EARTH'S RADIATION BELTS IN THE DENSE
LAYERS OF THE ATMOSPHERE [Timofeyev,
Geomagnetizm i aeronomiya, 1967]

The temporal dependence of electron distribution, conditioned by the Coulomb interactions, is studied with the aid of the kinetic equation. The lifetime of electrons with energy 1 Mev is obtained for various lines of force of the geomagnetic field at reflection altitudes of 350, 500 and 750 km.

ST - SP - 10594
6 pages

FORBIDDEN LINES OI AND SI IN THE SUN-
SPOT SPECTRUM [Sattarov, Vestnik Lenin-
gradskogo Universiteta, 1967]

The forbidden lines of OI ($\lambda 5577.3$ A, $\lambda 6300.3$ A, $\lambda 6363.8$ A) and SI ($\lambda 4589.29$ A) in the spectrum of three sunspots are the

object of study. The line $\lambda 4589.29$ A in the spectrum of the Sun is identified by the author as the forbidden line SI. This study indicates that the line $\lambda 5577.3$ A is attenuated in the spectrum of the spot, whereas the lines $\lambda 6300.3$ A, $\lambda 6363.8$ A and $\lambda 4589.3$ A are enhanced.

ST - PR - 10595
4 pages

SOYUZ-1 CONQUERS THE COSMOS [Tass commu-
ique, 24 April 1967]

A description of the flight and progress of the cosmonaut is presented in the article.

ST - PF - 10596
4 pages

ON THE ORIGIN OF THE SOLAR WIND [Samo-
khin, Kosmicheskiye issledovaniya, 1967]

The hydrodynamic description of solar corona expansion is retained by utilizing for larger ranges the microscopical model and kinetic equations when the length of the free path $\lambda \ll r$, r being the characteristic scale of the problem.

ST - PF - 10597
10 pages

SOLAR WIND OBSERVATIONS WITH THE AID
OF THE INTERPLANETARY STATION VENERA-3
[Gringauz, et al., Kosmicheskiye issle-
dovaniya, 1967]

These are the preliminary results of measurements of energy spectra of ion fluxes of solar wind beyond the Earth's magnetosphere with the help of the spacecraft "Venera-3" during the period from 16 November 1965 to 7 January 1966. Several conclusions are derived relative to physical characteristics of the solar wind and their connection with geomagnetic disturbances.

ST - AI - PF - 10598
7 pages

ON THE ROLE OF CORPUSCULAR RADIATION
IN THE FORMATION OF LOWER IONOSPHERE
[Tulinov, Kosmicheskiye issledovaniya,
1967]

This paper describes the results of direct measurements of electron fluxes with energy > 40 kev in the upper atmosphere to 100 km altitude. Calculations are conducted which show that the contribution of electrons to the ionization in the 70-70 km altitude range may be predominant.

ST - SP - 10599
8 pages

IMAGE AND SPECTRUM OF THE SUN IN THE
REGION 9.5--200 A [Zhitnik, et al.,
Kosmicheskiye issledovaniya, 1967]

Photographs and the spectrum of the Sun were obtained in the shortwave ultraviolet and soft X-ray regions of the spectrum on 20 September and 1 October 1965 with the help of an apparatus installed on two geophysical rockets having attained the height of nearly 500 km.

The photographs and the Sun's spectrum obtained on 1 October from 03 h 59 m 20 sec to 04 h 05 m 10 sec U.T. encompassed the concluding stage of an optical chromospheric flare and the initial stage of an X-ray flare. The latter took place in the region of the corona not having visible perturbations.

ST - PF - 10600
4 pages

COMPARISON OF CERTAIN RESULTS OF SIMULTANEOUS MEASUREMENTS OF SOLAR WIND CHARACTERISTICS ON SPACECRAFTS "VENERA-3" AND "PIONEER-6" [Gringauz, et al., Kosmicheskiye issledovaniya, 1967]

The comparison of some of the results of measurements of solar wind characteristics conducted during radiocommunication sessions with the Soviet probe "Venera-3" during the period from 16 November 1965 to 7 January 1966 with the published part of the results obtained on the American spacecraft "Pioneer-6," related to the period from 18 to 31 December 1965, attests to their satisfactory agreement.

ST - CM - AI - 10601
7 pages

NOMOGRAM FOR THE DETERMINATION OF THE LIFETIME OF AN ARTIFICIAL EARTH'S SATELLITE [Vlasov, Kosmicheskiye issledovaniya, 1967]

A graphic method is substantiated for an approximate evaluation of the lifetime of an artificial Earth's satellite taking into account the density variation of upper atmosphere layers in the course of the solar activity cycle. The nomogram proposed for the determination of an AES lifetime by this method is based upon known data on atmosphere density.

ST - NP - 10602
4 pages

CALCULATION OF THE NUMBER OF DISPLACEMENTS IN CASCADES OF IDENTICAL PARTICLE COLLISIONS [Lenchenko, Atomnaya energiya, 1967]

The calculation of the total number of displacements (ionizations, excitations, displaced atoms and so forth) is the starting point in the explanation of physico-chemical transformations in a matter subject to action of nuclear radiations.

ST - IGA - 10603
10 pages

EVOLUTION OF GALACTIC STAR CLUSTERS AS
A RESULT OF DISSIPATIONS [Mikheile,
Vestnik Leningradskogo Universiteta,
1967]

The rate of dissipation from the galactic cluster of stars with various masses is determined. This factor is taken into consideration, and the change of the cluster's luminosity function during its evolution is investigated. The results are applied to Pleiades.

ST - ES - MIN - 10604
6 pages

SHOCK CONTRACTION OF SiO₂ POWDERS
[Deribas, et al., Doklady, Mineral-
ogiya, 1967]

The method of shock-contraction in a converging cylindrical wave, applied to the investigation of the process taking place in powders from various substances, has already given a series of interesting results. Its use is of substantial interest to the field of Earth's sciences.

ST - SP - GM - 10605
9 pages

CONTRIBUTION TO THE STUDY OF THE RELATIONSHIPS BETWEEN SOLAR AND GEOMAGNETIC ACTIVITIES [Bednarova-Novakova, Journal of Atmospheric and Terrestrial Physics, 1967]

The article states the necessary conditions under which geomagnetic storms arise, as revealed by observations of the Sun. The new criteria do not conflict with those previously developed based on other phenomena.

On the strength of these new ideas a method for forecasting geomagnetic activity has been elaborated, enabling a sudden commencement to be predicted with great accuracy. It makes possible the forecasting of geomagnetic storms in each period of the solar cycle and to say in advance whether the onset of a given storm will be sudden or gradual.

As examples for the purpose of explaining their origin, use has been made of the SC-geomagnetic storms of 11 February 1958, 20 September 1959, 29 October 1963 and 22 November 1963. Except for the first, all these storms had been predicted on the basis of observations of the Sun by means of the spectrohelioscope. Furthermore, an explanation is given of the origin of the gradual-onset geomagnetic storm of 6 and 7 October 1960, which had likewise been predicted. On the same principles, explanations are provided of the geomagnetic quiet period of 19-25 June 1965, which recurred six times (16-17 July, 13 August, 8-9 September, 6-7 October, 1-3 November and 28-29 November 1965) and of the

one that occurred twice--on 31 December 1965 and 1 January 1966, and on 27-28 January 1966.

ST - GM - PF - 10606
5 pages

STUDY OF THE EARTH'S MAGNETIC FIELD WITH
THE AID OF RADIATION BELTS [Kuznetsov,
Geomagnetizm i aeronomiya, 1967]

The possibility of studying the geomagnetic field with the aid of radiation belts is based upon the detection by Elektron-1 of a stable electron belt with $E > 6$ Mev, its position being clarified by findings of Elektron-2, and explained by the existence of a ring current.

ST - IGA - 10607
9 pages

DISTRIBUTION OF MASSES IN GALAXIES AC-
CORDING TO DATA ON RADIAL VELOCITIES-I
[Sizikov, Vestnik Leningradskogo Univer-
siteta, 1967]

Two new ways are proposed for the solution of the Burbidge and Prendergast equation. The results of calculation of the mass for twelve galaxies and of the density for four galaxies are given. The tables and the diagrams presented show considerable departures from the results of other authors.

ST - SA - OA - 10608
5 pages

EXTRA-ATMOSPHERIC OBSERVATIONS OF THE
ULTRAVIOLET IN THE WINTERTIME MILKY WAY
[Virton, from a typewritten note to
Dr. Kupperian, GSFC, May, 1967]

Three large nebulae, of about 10° , 15° and 20° apparent diameter have been detected around Sirius and in the constellations of Orion, Gemini and Auriga Aur. The ultraviolet radiation from O and B stars has been ascertained.

ST - OA - LPS - 10609
4 pages

GEOMETRICAL MODEL OF CALCULATION OF PLAN-
ET-REFLECTED SOLAR THERMAL FLUXES [Kra-
sovskiy, Kosmicheskiye issledovaniya, 1967]

The geometrical construction of this problem is based upon the assumption that the scattering of the radial flux proceeds according to the Lambert law, and that the scattered reflection factor is the same for all the portions of the planet's surface.

ST - GM - PF - 10610
4 pages

THE NONDIPOLE PART OF THE GEOMAGNETIC FIELD
IS MANIFEST AT MAGNETOSPHERE BOUNDARY

[Kalinin, Geomagnetizm i aeronomiya, 1967]

The author establishes that the magnetosphere boundary is located above the daytime part of the Earth at distances from the center of the Earth, functions of not only interplanetary plasma parameters, but also of the nondipole part of the geomagnetic field on the basis of data of Explorer-12 and -18.

ST - GM - 10611
4 pages

MAGNETIC CHART OF THE BRAZILIAN ANOMALY
[Konovalova, et al., Geomagnetizm i aeronomiya, 1967]

A magnetic chart of the Brazilian anomaly has been drawn on the basis of magnetic field measurements by proton magnetometers installed on AES Kosmos-49 and Kosmos-26.

ST - AI - GM - 10612
6 pages

INVESTIGATION OF THE EQUATORIAL ANOMALY OF THE IONOSPHERE IN THE EAST ASIATIC ZONE OF THE PACIFIC OCEAN [Artem'yeva, et al., Geomagnetizm i aeronomiya, 1967]

The investigation of the ionosphere in the Pacific Ocean was carried out by vertical sounding from a ship. The results obtained are discussed with regard to the positions of the F₂-layer maximum, the course of f₀F₂, as related to the various cycles of solar activity and seasons.

ST - GM - PF - 10613
9 pages

TOPOLOGY OF THE GEOMAGNETIC FIELD AT 3 TO 7 EARTH'S RADII ACCORDING TO DATA OF "ELEKTRON-2" [Shevnin, Geomagnetizm i aeronomiya, 1967]

Projections have been obtained of perturbed field vectors on a plane parallel to the geomagnetic equator, and on the geomagnetic meridian plane for five satellite convolutions during the period from 10 to 14 February 1964. The behavior of the geomagnetic field for the considered days of low magnetic activity is dependent on local time: on the night side, the behavior of the perturbed field basically sustains the ring current hypothesis, while on the morning side, there is noted in addition to the ring current a "blow off" toward the night side of the magnetic lines of force and their contraction to the geomagnetic equator plane.

ST - PF - RWP - 10614
4 pages

PECULIARITIES OF DISPERSION OF PROTON WHISTLERS DETECTED ON AES "INJUN-3" AND

"ALOUETTE-1" [Gul'yel'mi, Geomagnetizm i aeronomiya, 1967]

The author discusses several of the recent United States works on proton whistlers, and develops a few considerations leading to the explanation of certain peculiarities of proton whistler dispersion.

ST - NP - AI - 10615
5 pages

DECAY OF MOLECULAR HYDROGEN IONS IN COLLISIONS WITH THERMAL ELECTRONS
[Dubrovskiy, et al., Astronomicheskii zhurnal, 1967]

Cross-sections of direct and inverse processes are calculated for decay reactions $H_2^+ + e \rightarrow H' + H''$ with formation of hydrogen atoms in excited state. It is shown that the rate of recombination at low temperatures is proportional to $T^{-1/2}$ and does not exceed the value of $3 \cdot 10^{-8}$ cm³/sec. The last result is in good agreement with experimental data.

ST - PR - 10616
5 pages

HIGHLIGHTS OF PRESS RELEASES ON THE "SALON DU BOURGET" [Tass communique, 25 May 1967]

The various Soviet satellites are described as presented at the Paris exhibit with two photographs depicting the carrier-rocket Vostok assembled on its launcher and the assemblage of the same rocket at Le Bourget Airport.

ST - GM - AI - 10617
7 pages

HIGH LATITUDE FIELD OF POLAR DISTURBANCES
[Maysuradze, Geomagnetizm i aeronomiya, 1967]

The high latitude field of DP-disturbances is studied by construction of charts of successive disturbed field moments. Since DP-disturbances have their source in the high latitude ionospheric currents, their dynamics were the object of study as a function of D_{st} -variations by means of synoptic charts. The patterns obtained are discussed at length.

ST - LPS - NLS - 10618
8 pages

POSSIBLE INTERPRETATION OF THE RESULTS OF MEASUREMENTS ON THE NEAR LUNAR SATELLITE "AMS LUNA-10" [Dolginov, et al., From a typewritten preprint of the author, May 1967]

This paper discusses the nature of the near-lunar field and the possibility of detecting the Earth's magnetic tail in connection with the results of magnetic and plasma measurements in the vicinity of the Moon on the artificial satellite, Luna-10.

ST - LPS - RWR - 10619
9 pages

REFLECTION FACTOR FROM THE PLANE-STRATIFIED MEDIUM OF LUNNITE FOR VARIOUS ANGLES OF INCIDENCE OF ELECTROMAGNETIC WAVES [Matveyev, *Astronomicheskii zhurnal*, 1967]

The reflection factor from a nonuniform inhomogeneous medium of a plane-stratified nature is computed for the case when this medium's index of refraction varies from a certain value on the surface to another value in depth along the exponential curve.

It is shown that the angular dependence of the reflection factor of such a medium coincides well with that of an homogeneous medium for a certain effective value of the index of refraction, determined from the condition of equality of these media's reflection factors when the incidence of electromagnetic waves is normal. Inasmuch as the reflection factor of a stratified medium is dependent on the wavelength, the effective reflection factor is also a function of λ .

An approximation is obtained of the frequency dependence of the effective index of refraction as a function of inhomogeneity depth. The applicability is concluded of Fresnel formulas for the calculation of the integral radioemission of the Moon regardless of the existence of the well known inhomogeneity of properties in depth.

ST - RWP - GM - 10620
7 pages

INFLUENCE OF THE EARTH'S MAGNETIC FIELD ON THE PROPAGATION OF ULTRALONG WAVES AROUND THE EARTH [Baybulatov, *et al.*, *Doklady, Geofizika*, 1967]

The influence of the Earth's magnetic field on the propagation of ultralong waves around the Earth is analyzed in the light of a number of preceding works. It is based on the representation of the field of ultralong waves as approximately the sum of several normal waves. The influence of the field on the propagation of ultralong waves is then discussed by means of graphs constructed for the three indicated types of waves.

ST - RA - QUE - 10621
5 pages

QUANTUM GENERATOR IN SPACE [Yur'yev, *Priroda*, 1967]

The utilization of quantum generators in space is examined. Particular emphasis is given the utilization of molecular generators

in the airborne apparatus of the Earth's artificial satellites. The experiment on the artificial Earth's satellite, Kosmos-97, is described. This experiment was with a quantum generator using ammonia and to conduct it, one of the variants of the "Kosmos" series was applied, that is, that with solar cells.

ST - PR - 10622
4 pages

THE SPACE SYSTEM "METEOR" SERVES
METEOROLOGISTS [Tass communique,
from Pravda, 4 June 1967]

Meteorological information about the experimental cosmic meteorological system, "Meteor" is presented with sketches of the meteorological satellites "Kosmos-144" and "Kosmos-156."

ST - IM - CR - 10623
5 pages

ON THE POSSIBILITY OF INVESTIGATION
OF PRIMARY COSMIC RADIATION BY TRACKS
OF NUCLEAR PARTICLES IN METEORITES AND
TEKTITES [Kasharov, et al., Izvestiya
A.N. SSSR, 1967]

It is shown that the investigation of primary cosmic radiation by the tracks of nuclear particles in meteorites and tektites is possible on the basis of the study of the depth of tracks and the results of measurements of the age of tektite hardening.

ST - PP - 10624
5 pages

ON NONLINEAR DRIFT WAVES IN A PLASMA
[Petviashvili, Doklady, Fizika, 1967]

This paper establishes that because of the possibility of drift wave propagation in the plasma in the presence of an inhomogeneity across the magnetic field, as time goes on, the inclination of these waves' leading front becomes steeper and steeper by comparison with the initial state, so long as the mean wave frequency does not become so high that it becomes indispensable to take into account the inertia of ions across the magnetic field. Then the wave assumes a stationary state provided the amplitude is not too great. This may lead to strong plasma turbulization in the presence of instability relative to low-frequency drift waves, inasmuch as the correlation between oscillations in any two points of the plasma weakens considerably as the amplitude of oscillations rises.

ST - IM - CG - 10625
10 pages

ON SOME MODELS OF ZODIACAL CLOUD
[Divari, Astronomicheskiy vestnik,
1967]

Certain models of heliocentric cloud are considered. Starting from the distribution of orbit inclinations of dust particles, which are analogous to orbit distributions of comets, asteroids and meteors, the concentration $F(r, \phi)$ of a dust cloud is computed for each model as a function of the distance r from the Sun and of the heliocentric latitude ϕ . The functions $F(r, \phi)$, obtained for each model, were used for the calculation of brightness of zodiacal light.

Comparison of the so computed brightnesses with those observed shows that the distributions corresponding to asteroids, periodic comets, as well as to hyperbolic comets, cannot be taken for the zodiacal cloud. Two models: the meteoric and the cometary, including both the periodic and hyperbolic orbits, assure a sufficiently good agreement with observations.

The calculated dependence of the degree of polarization on the distance from the Sun in the ecliptic is found to be sufficiently similar to that observed for all models. It should be noted that there are specific difficulties from the point of view of cosmogony linked with the explanation of zodiacal cloud existence at the expense of disintegration of periodical comets and meteors.

ST - LPS - RW - 10626
4 pages

INVESTIGATION OF REFLECTIONS BY THE
MOON'S SURFACE OF METER RADIO WAVES
[Yakovlev, et al., Doklady, Geofizika,
1967]

This note describes the results of measurements of the reflection and scattering of radiowaves with $\lambda \approx 1.7$ m performed in September 1966 on the AMS "Luna-11." The investigation of the dependence of the reflection factor on the sliding angle permitted the obtaining of data on lunar rocks' dielectric constant. A more extended report is to be presented elsewhere.

ST - CM - OA - LPS - 10627
9 pages

ON THE POSSIBILITY OF REFINING BY
MEANS OF OPTICAL LOCATION SOME AS-
TRONOMICAL PARAMETERS OF THE SYS-
TEM EARTH--MOON [Kokurin, et al.,
Kosmicheskiye issledovaniya, 1967]

A mathematical treatment is performed of the possibilities of determining by the results of optical location of the Moon the following parameters, using an artificial light reflector on its surface:

- the mean radius and the eccentricity of the lunar orbit;
- the selenographic coordinates of the point being located, i.e., the latitude, longitude and the radius-vector of the Moon's relative mass center;

- the radius-vector of the point of observation relative to the mass center of the Earth;
- the ephemeris time.

Analysis of the possible errors is conducted and it is shown that the precision of determination of these parameters may be significantly higher than the precision with which they are known, or may be determined by other methods. However, the attaining of high precision is possible only on the condition of preliminary investigation of physical libration, of which the insufficient knowledge of laws may lead at the present time to great errors in the parameters investigated. The possibility is indicated of libration measurement by the method of optical location.

ST - PR - LPS - 10628 SOMETHING NEW ABOUT VENUS [Martynov,
4 pages Pravda, 14 June 1967]

On 12 June of the current year, the Soviet space rocket (Venus-4) took off toward the planet Venus with an interplanetary station. Its flight will last more than four months. The present column is devoted to the enigmas of this planet.

ST - SP - 10629 OBSERVATION OF TYPE-III SOLAR RADIOBURSTS
5 pages ON AIS "VENERA-2" [Slysh, *Astronomicheskii*
zhurnal, 1967]

Type-III bursts of solar radioemission were observed on the AIS "Venera-2" in the 985 kc and possibly in the 30 kc/sec frequencies. Estimates have been obtained of electron temperature of the outer corona and of motion velocity of the agent inducing the radioemission.

ST - NP - CG - 10630 NUCLEAR TRANSFORMATIONS IN NATURE [Vlasov,
7 pages *Atomnaya energiya*, May 1967]

The problem is discussed of instability boundaries of nuclei relative to the emission of protons and neutrons, and also the conditions of existence in nature of neutron-surplus nuclei close to instability boundary.

The possibility is indicated to explain some of the anomalies in the distribution of elements and isotopes if one assumes collisions of material cosmic bodies with antimatter ones.

The existence of antimatter in the Galaxy could have led to the formation of radioactive spots on the surface of the Moon.

ST - AA - AI - 10631 HIGHER ORDER SCATTERING IN THE TWILIGHT
4 pages SKY ZENITH [Fesenkov, *Doklady, Geofizika*,

It is shown in this note that since the influence of higher order scattering at zenith of the twilight sky may be quite significant by comparison with the brightness of primary twilight at the same point and dependent to a high degree on the assumed atmosphere structure, any judgment on the optical properties of the atmosphere on the basis of the quantity $B(0, 0)$ is entirely void of ultimate significance.

ST - CM - 10632
6 pages

ON THE REGIONS OF IMPOSSIBILITY OF
MOTIONS IN THE PROBLEM OF THREE BODIES
[Golubeyev, Doklady, Astronomiya, 1967]

The regions of impossibility of motions are defined for three bodies alongside with the conditions for their existence and their fundamental properties for the case when the modulus of the moment vector of the system's quantity motion, which is constant, is not zero.
